REMARKS/ARGUMENTS

Claims 1-30 are pending. The claims are not amended in this response, but are provided herewith for the examiner's convenience.

Claims 1, 3-4, 6-8, 27, and 30 were rejected under 35 U.SC. § 102(b) for allegedly being anticipated by Hekhuis, U.S. Patent No. 5,414,650.

Claims 2, 5, 9-11, 12-26, and 28-29 were rejected under 35 U.S.C. § 103(a) for allegedly being unpatentable over Hekhuis in view of Narad.

The Pending Claims

The claims sets are as follows:

independent claim 1 and dependent claims 2-5;

independent claim 6 and dependent claims 7-10;

independent claim 11 and dependent claims 12-17;

independent claim 18 and dependent claims 19-26; and

independent claim 27 and dependent claims 28-30.

The claims are directed to methods and apparatus for classifying network data by treating the data stream as a language. The network data stream is processed according to a language definition. Claim 1, for example, recites the combination of providing a language definition including a grammar and processing incoming network data with the language definition in accordance with a formal language processing technique, including parsing the network data using the grammar.

Independent claim 6 further recites lexically scanning the data packet to produce tokens, and then parsing the tokens according to the grammar.

Independent claim 11 recites receiving grammar rules in the form of a grammatical packet classifier and performing a compiling step to produce a grammar graph. The grammar graph is used to configure a programmable packet classifier. A data stream is then processed in accordance with a formal language processing technique using the grammatical packet classifier to identify protocol structure in the received data packet.

Independent claim 23 further recites a DFA defined by a language definition and decompression logic to process network data packets comprising a stream of data according to a formal language processing technique using the language definition. The DFA represents a grammar graph and regular expressions and is used to match the stream of data against the represented regular expressions to identify lexical tokens.

Independent claim 27 recites means for receiving a network packet and for identifying protocol structure in the network packet. The network packet is processed according to formal language processing techniques using a language definition, including scanning to match patterns in the network data against regular expressions to produce lexical tokens.

The Cited Art

Hekhuis was cited in column 8, line 55 to column 9, line 6 for "a hash table of words are provided to provide a language definition." *O.A. at page 2, rejection of claim 1.* As will be discussed in more detail below, the cited portion of Hekhuis discusses an example of a rule-based parsing of example text strings shown in Fig. 3. There is no discussion of a hash table.

Narad et al. was cited for showing the use of a DFA.

a) Hekhuis

Hekhuis teaches "lossless compression," a technique that is similar to Lempel-Ziv (LZ compression) and is often referred to as "dictionary based compression" or "substitutional compression." The general concept is described in column 1 line 45-70. As an observational note, this method is used in popular lossless compression programs such as WinZip.

b) Hekhuis does not show the recited "processing ... in accordance with a formal language processing technique"

Hekhuis was cited in column 8, line 55 to column 9, line 37 (and also column 10, line 40 to column 11, line 42) for showing "packets are parsed according to parsing rules to identify words where packets are classified accordingly." *O.A. at page 3, first two lines.* While it

is accurate that Hekhuis performs "parsing," it must be noted that he parsing of Hekhuis is performed in accordance with parsing rules; i.e., it is rule-based . Application of the Hekhuis rules does not constitute processing using ***a language definition*** including ***a grammar*** and processing incoming network data with the language definition in accordance with ***a formal language processing technique***, including ***parsing the network data using the grammar***. The Hekhuis performs classification according to a simple rule; for example, if a letter belongs to the set {a, e, i, o, t}, then it is classified as a "cardinal", otherwise the letter is classified as a "collateral." There simply is no language definition in the rule, there is no grammar in the rule, there is no formal language processing technique when the rule is applied to the letter, and there is no parsing involved.

Referring to the three example text strings of Fig. 3 and to his discussion beginning at column 8, line 30, Hekhuis discusses parsing each text string by establishing boundaries between packets at a level n+1 containing packets at a lower level n. With regard to the first text string in Fig. 3, each letter and space character is a "level-0 packet" and is classified as either cardinal packet or a collateral packet. *Col. 8, lines 48-50.* The level-0 packet is defined by the classification Rule (3) in column 8, lines 7-8. The rule does not involve the recited processing of incoming network data with a language definition in accordance with a formal language processing technique. Instead, the rule merely designates a letter as being a "cardinal" if the letter is in the set of {a, e, i, o, t}, and a "collateral" otherwise. Likewise, the rule does not involve scanning using lexical token scanning.

Continuing with the example of Fig. 3, Hekhuis next describes a level-1 parsing rule that establishes a level-1 packet boundary as a boundary "just before any cardinal packet which is immediately preceded by a collateral packet." *Id at lines 58-60.* These boundaries are shown as the medium-length lines and long length lines in Fig. 3. It is earnestly submitted that the rule for establishing level-1 boundaries does not constitute the recited processing of incoming network data with a language definition in accordance with a formal language processing technique, including scanning using lexical token scanning. The rule for establishing level-1 boundaries does not constitute lexical token scanning.

Continuing further with the example of Fig. 3, Hekhuis describes a level-2 parsing rule that establishes a level-2 packet boundary as a boundary "just before any level-1 cardinal packet that immediately follows a collateral packet." *Id at lines 62-64.* These boundaries are shown as the long-length lines in Fig. 3. As with the level-1 rule above, it is earnestly submitted here that the rule for establishing level-2 boundaries does not constitute the recited processing of incoming network data with a language definition in accordance with a formal language processing technique, including scanning using lexical token scanning. The rule for establishing level-2 boundaries does not constitute lexical token scanning.

Fig. 3 shows Hekhuis' rule-based parsing for two additional example text strings. These are discussed in column 9, lines 15-37. Hekhuis discuss other types of parsing rules from column 10, line 40 to column 11, line 42. Hekhuis discloses a local extrema parsing rule at column 10, lines 50-66 and column 11, lines 13-42, and an oscillating parsing rule at column 10, line 67 to column 11, line 12. It is earnestly submitted that in none of these discussions does Hekhuis disclose or suggest the recited processing of incoming network data with a language definition in accordance with a formal language processing technique, including scanning using lexical token scanning.

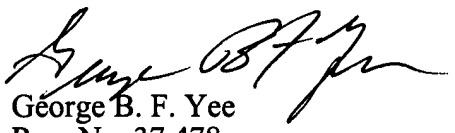
As to the remaining independent claims 6, 11, 18, and 27, these claims each recite different and further aspects of the disclosed system and method. But each independent claim recites the language definition, grammar, and formal language processing technique, including parsing the network data using the grammar as recited in independent claim 1. It is most earnestly submitted that these common limitations among the independent claims are not disclosed by Hekhuis.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



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